

Claims

- [c1] A method for hoisting and positioning oilfield apparatus over a well head, comprising:coupling the oilfield apparatus to a mast having at least two telescoping arms;lifting the oilfield apparatus by extending the at least two telescoping arms; andpivoting the at least two telescoping arms to position the oilfield apparatus over the wellhead.
- [c2] The method of claim 1 , wherein the at least two telescoping arms of the mast are pivotally mounted to a vehicle.
- [c3] The method of claim 1 , wherein at least one of the at least two telescoping arms includes a plurality of segments and a self-locking jack screw for extending a first one of the plurality of segments with respect to a second one of the plurality of segments.
- [c4] The method of claim 3 , wherein the at least one of the at least two telescoping arms includes a lifting chain for telescopically extending a third one of the plurality of segments out of the second one of the plurality of segments as a the second of the plurality of segments is extending.
- [c5] The method of claim 1 , further comprising automatically limiting a degree to which the at least two arms may be pivoted based on an amount the at least two arms are extended.
- [c6] The method of claim 5 , wherein automatically limiting a degree to which the at least two arms may be pivoted includes moving, with respect to points around which the at least two arms are pivoting, a mounting point of a mechanism causing pivoting of the at least two arms based on the amount the at least two arms are extended.
- [c7] The method of claim 1 , wherein the mast is mounted to a rear portion of a vehicle for transporting the mast to the well head.
- [c8] A method for hoisting oilfield apparatus over a well head, comprising;transporting the oilfield apparatus and a mast to well head on a vehicle, the mast having at least two telescoping arms pivotally mounted to the

vehicle;coupling the oilfield apparatus to the mast when the mast is in a retracted position;lifting the oilfield apparatus by extending the at least two telescoping arms; andpivoting the at least two telescoping arms to position the oilfield apparatus over the wellhead.

[c9] The method of claim 8, wherein at least one of the at least two telescoping arms includes a plurality of segments and a self-locking jack screw for extending a first one of the plurality of segments with respect to a second one of the plurality of segments.

[c10] The method of claim 9, wherein the at least one of the at least two telescoping arms includes a lifting chain for telescopically extending a third one of the plurality of segments out of the second one of the plurality of segments as a the second of the plurality of segments is extending.

[c11] The method of claim 8, further comprising automatically limiting a degree to which the at least two telescoping arms may be pivoted based on the amount of extension of the at least two arms.

[c12] The method of claim 11, wherein automatically limiting the degree to which the at least two arms may be pivoted includes moving, with respect to points around which the at least two telescoping arms are pivoting, a mounting point of a mechanism causing pivoting of the at least two arms based on the amount the two arms are extended.

[c13] The method of claim 8, wherein the oiled field apparatus includes a coiled tubing injector.

[c14] The method of claim 13, further comprising transporting a blowout preventer on the vehicle, wherein the coiled tubing injector and blowout preventer are transported between the at least two arms and the blowout preventer and coiled tubing injector are mounted to pivot with the mast between a stowed position and an upright position.

[c15] The method of claim 13, further comprising, after lifting the coiled tubing injector and before pivoting the at least two telescoping arms to position the

coiled tubing injector over the wellhead, lowering the coiled tubing injector by retracting the at least two telescoping arms and attaching it to a blowout preventer held in an upright position between the at least two legs.

- [c16] The method of claim 8 wherein the oilfield apparatus is placed between the at least two legs during transporting the oilfield apparatus and the mast on the vehicle, the oilfield apparatus being transported to the site on the vehicle on a mounting that pivots with the at least two legs of the mast between a stowed position and at least an upright position.
- [c17] Apparatus for hoisting oilfield apparatus over a well head comprising a mast assembly with at least two telescoping arms coupled pivotably coupled to a support base, the plurality of arms each comprising a plurality of synchronously operable telescoping segments for extending and retracting in unison, whereby oilfield apparatus mounted between the at last two arms may be lifted and positioned over a well head.
- [c18] The apparatus of claim 17, wherein at least one of the at least two telescoping arms includes a self-locking jack screw for extending a first one of the plurality of segments of the at least one of the at least two telescoping arms with respect to a second one of the plurality of segments of the at least one of the at least two telescoping arms.
- [c19] The apparatus of claim 18, wherein the at least one of the at least two telescoping arms includes a lifting chain for telescopically extending a third one of the plurality of segments out of the second one of the plurality of segments as a the second one of the plurality of segments is extending.
- [c20] The apparatus of claim 17, wherein the mast assembly is mounted to a rear portion of a vehicle for transporting the mast assembly.
- [c21] The apparatus of claim 17 further including a mechanism coupled between the mast assembly and the support base for pivoting the at least two telescoping arms.
- [c22] The apparatus of claim 21, wherein the mechanism for pivoting the at least two

telescoping arms has a limited range and is coupled at one end to a movable mounting.

- [c23] The apparatus of claim 22, further including a mechanism for moving the mounting automatically based on the extension of the at least two arms, whereby pivoting of the arms in at least one direction is limited by the amount of extension of the at least two arms.
- [c24] The apparatus of claim 21, wherein the mechanism for pivoting includes a hydraulic cylinder.
- [c25] The apparatus of claim 17 further including a mounting for transporting oilfield apparatus, the mounting being disposed between the at least two telescoping arms and moving with the mast assembly as it pivots between a stowed position and at least an upright position.
- [c26] The apparatus of claim 17, further including a cross member coupled between ends of the at least two telescoping arms, the cross member including a latch to which oilfield apparatus may be attached for lifting by the mast assembly.
- [c27] The apparatus of claim 26, further comprising a coiled tubing mounting and a blowout preventer mounting disposed between the at least two telescoping arms, wherein the cross member including trolley for moving laterally the latch.
- [c28] The apparatus of claim 27, wherein the blowout prevent mounting slides laterally between the at least two telescoping arms.
- [c29] A vehicle for hoisting oilfield apparatus over a well head comprising a mast assembly with at least two telescoping arms coupled pivotably coupled to a rear of the vehicle, the plurality of arms each comprising a plurality of synchronously operable telescoping segments for extending and retracting in unison, and a mounting for transporting oilfield apparatus, the mounting being disposed between the at least two telescoping arms and moving with the mast assembly as it pivots between a stowed position and at least an upright position.
- [c30] The vehicle of claim 29 further including a mechanism coupled between the mast assembly and the support base for pivoting the at least two telescoping

arms.

- [c31] The apparatus of claim 30, wherein the mechanism for pivoting is limited in extension and is coupled at one end to a movable mounting, the movable mounting having a mechanism for moving the mounting in response to extension of the at least two telescoping arms.
- [c32] The apparatus of claim 29, further including a cross member coupled between ends of the at least two telescoping arms, the cross member including a latching mechanism to which oilfield apparatus may be attached for lifting by the mast assembly.
- [c33] The apparatus of claim 29, wherein the mounting includes a coiled tubing injector support and a blow out preventer support.
- [c34] The apparatus of claim 33, further including a cross member coupled between ends of the at least two telescoping arms, the cross member including a latch to which oilfield apparatus may be attached for lifting by the mast assembly and a trolley for moving laterally the latch.
- [c35] The apparatus of claim 33, wherein the blowout preventer support slides laterally between the at least two telescoping arms.